SLOVENSKI STANDARD
SIST EN 924:2003

01-julij-2003

Nadomeġļa:
SIST EN 924:1998

Lepila - Raztopinska lepila in lepila brez topil - Doloļanje plameniġļa

Adhesives - Solvent-borne and solvent-free adhesives - Determination of flashpoint

Klebstoffe - Lösemittelhaltige und lösemittelfreie Klebstoffe - Bestimmung des Flammpunktes

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Adhésifs - Adhésifs a base de solvants et adhésifs exempts de solvant - Détermination du point d'éclair

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Ta slovenski standard je istoveten z: EN 924:2003

ICS:

83.180	Lepila	Adhesives

SIST EN 924:2003 **en**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

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SIST EN 924:2003

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 924

April 2003

ICS 83.180

Supersedes EN 924:1994

English version

Adhesives - Solvent-borne and solvent-free adhesives - Determination of flashpoint

Adhésifs - Adhésifs à base de solvants et exempts de solvants - Détermination du point d'éclair

Klebstoffe - Lösemittelhaltige und lösemittelfreie Klebstoffe - Bestimmung des Flammpunktes

This European Standard was approved by CEN on 14 February 2003.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN 924:2003) has been prepared by Technical Committee CEN/TC 193 "Adhesives", the secretariat of which is held by AENOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2003, and conflicting national standards shall be withdrawn at the latest by October 2003.

This document supersedes EN 924:1994.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

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Introduction

This European Standard describes one method for the determination of the flashpoint of adhesives containing volatile organic compounds. It is generally equivalent to ISO1523, *Paints, varnishes, petroleum and related products — Determination of flashpoint — Closed cup equilibrium method*. By the procedure specified in this European Standard, differences between test apparatus of various standard designs are minimised by ensuring that the test is carried out only when the product under test and the air/vapour mixture above it in the test vessel are approximately in temperature equilibrium.

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1 Scope

This European Standard specifies a method for determining the flashpoint of adhesives containing volatile organic compounds and makes allowance for deviations from standard atmospheric pressure. It applies to solvent-borne and solvent-free adhesives but not to water-borne adhesives containing less than10% of solvents.

NOTE Care should be taken in the interpretation of results obtained from solvent mixtures containing halogenated hydrocarbons as such mixtures can give anomalous results (see Annex A).

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 923:1998, *Adhesives — Terms and definitions*

EN 1066, *Adhesives — Sampling.*

EN 1067, *Adhesives — Examination and preparation of samples for testing.*

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3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 923:1998 and the following apply:

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3.1
flashpoint (closed cup)
minimum temperature to which a product, confined in a closed cup, is to be heated for the vapours emitted to ignite momentarily in the presence of a flame, when operating under standardized conditions

NOTE In this European Standard, the flashpoint is corrected to an atmospheric pressure of 101,3 kPa.

4 Principle

The test portion is heated in a suitably designed closed cup by immersing it to the required level in a suitable bath.

The temperature of the bath is slowly raised at such a rate that the difference in temperature between the liquid in the bath and the test portion in the cup never exceeds 2°C, and the heating procedure ensures that the temperature of the test portion does not rise more quickly than about 0,5°C in 1,5 min (see Note 1).

During the heating-up period, ignition trials are carried out at intervals of not less than 1,5 min (see Note 2).

The lowest temperature at which a flash occurs is noted and from this and a duplicate determination the flashpoint of the test product is calculated, corrected to the standard atmospheric pressure of 101, 3 kPa.

NOTE 1 To ensure that the test is carried out under approximately equilibrium conditions, a slow rate of heating is recommended because of the low thermal conductivity of some products and also because heat transfer by convection is hindered by the high viscosity of many products. Uniformity of temperature throughout the product under test can be assisted by use of a stirring device, which is not operated during an ignition trial.

NOTE 2 A minimum time interval of 1,5 min is recommended to ensure that a saturation concentration of vapour in the air space above the test portion is re-established after each ignition trial.

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5 Safety

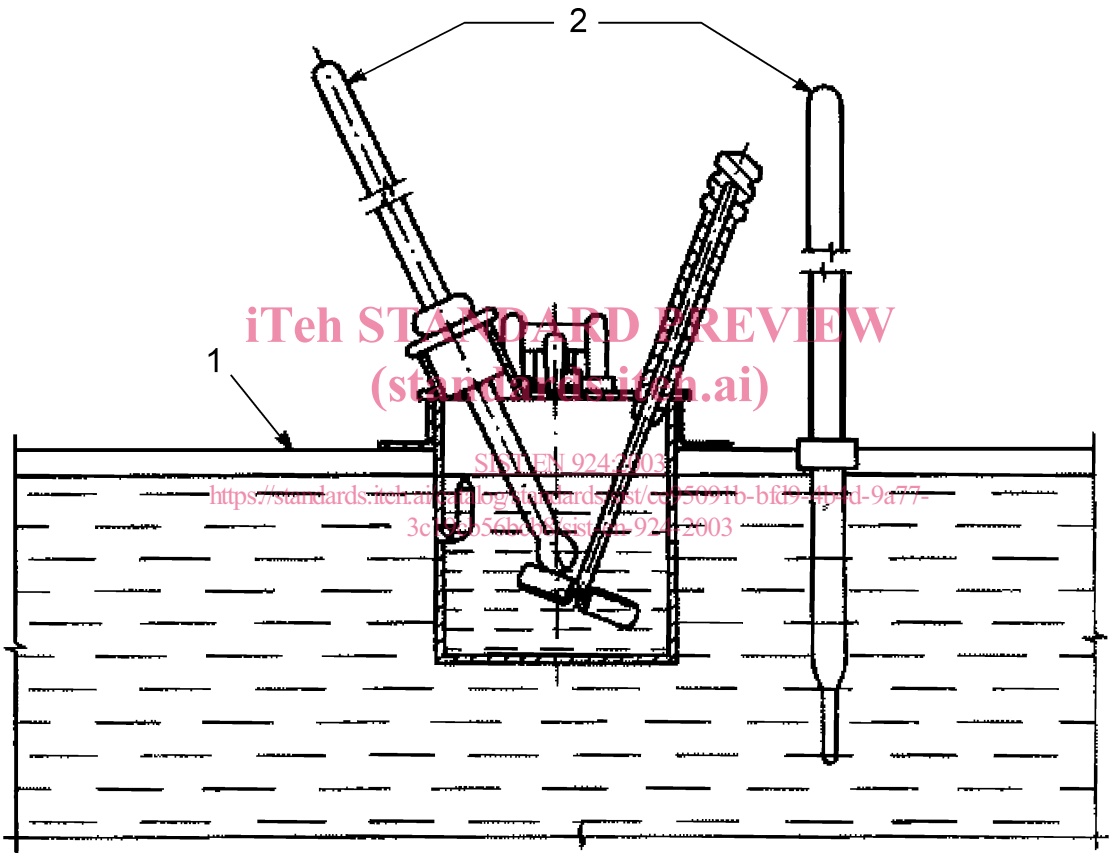
Persons using this standard shall be familiar with normal laboratory practice.

This standard does not purport to address all safety problems, if any, associated with its use.

It is the responsibility of the user to establish safety and health practices and to ensure compliance with any European or national regulatory conditions.

6 Apparatus

6.1 ***Test cup.*** A closed cup with an internal level indicator (see Figure 1).



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Key

1 Support

2 Thermometers

Figure 1 — Closed cup with fitted stirrer (see 6.1) immersed in the bath. (The stirrer for the bath is not shown)

Examples of suitable closed cups include Abel, Abel-Pensky and Pensky-Martens.

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If the adhesive is liable to be affected by the cup material, usually copper, an alternative more appropriate cup material, e.g. stainless steel, shall be used.

The cup may be fitted with a stirrer to improve uniformity of temperature.

If a stirrer originally fitted to the test cup is removed, the aperture in the cover shall be securely plugged before starting the test.

Essentially, the test cup shall be fitted with a cover which carries an opening slide and an ignition device which is inserted to a prescribed level into one of the openings in the cover when a test is made.

The equipment is such that an ignition trial can be performed by opening the slide, inserting and removing the nozzle of the ignition device, and closing the slide again, within a period of (2,5 ± 0,5) s.

A mechanically driven device for opening the slide and applying the ignition device to the air vapour mixture in the cup is permissible and the source of flame for the ignition device may be any suitable flammable gas.

Alternatively, an electrical ignition device can be used instead of a flame.

6.2 ***Bath*****,** containing a suitable liquid, capable of being adjusted to the required temperature (see 8.2.1.2) and of adequate heat capacity to meet the requirements of 8.2.3.6. A bath fitted with a stirrer and thermostat of suitable range is convenient.

Other procedures for heating the closed cup may be used if the rate of heating complies with the requirements given in clause 4.

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6.3 ***Thermometers.*** The test cup (6.1) shall be fitted with a thermometer of appropriate range and dimension that, when immersed in the test portion, measures its temperature with an error no greater than 0,5°C.

A thermometer having a graduation at each 0,5°C is recommended.

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The bath (6.2) shall be fitted with a thermometer of equal precision.

When required, the accuracy of the thermometers shall be checked against a reference standard by an authorised laboratory using the stipulated immersion.

6.4 ***Support***, for holding the test cup in the bath (6.2) so that the cover and upper edge are horizontal.

The cup is immersed in direct contact with the liquid in the bath in such a position that the level of the test portion in the cup is the same as that of the liquid in the bath (see Figure 1).